

What is claimed is:

1. A data transfer control device for transferring data among
a plurality of nodes that are connected to a bus, the data transfer
control device comprising:

determination means for determining whether or not a reset
that clears node topology information has occurred during a data
transfer period between a start of data transfer with respect to
another node until a completion of the data transfer;

40 command comparison means for comparing a content of a first
command packet for a data transfer operation request that was
transferred from the other node before the reset occurred and a
content of a second command packet for a data transfer operation
request that was transferred from the other node after the reset
45 occurred; and

restart means for restarting data transfer as a resumption
of data transfer at a point at which the reset occurred, when it
is determined that the reset that clears node topology information
has occurred within the data transfer period and also when it is
20 determined that the contents of the first and second command
packets are the same.

2. The data transfer control device as defined in claim 1,
wherein the determination means determines that the reset
25 has occurred during the data transfer period, when the first
command packet for a data transfer operation request is being
processed at a point at which the reset that clears node topology

information occurred, and also when data transfer has already been performed in accordance with the first command packet and no data transfer completion status has been transferred to the other node.

5 3. The data transfer control device as defined in claim 1,
wherein the determination means sets a continuation flag
to on, to indicate that data transfer is possible to restart in
continuation, when it is determined that the reset that clears
node topology information has occurred during the data transfer
period.

4. The data transfer control device as defined in claim 1,
further comprising command storage means for storing information
for specifying an address for the restart of data transfer and
content of the first command packet for a data transfer operation
request, from after an occurrence of the reset up to the restart
of data transfer.

5. The data transfer control device as defined in claim 1,
20 wherein the command comparison means takes an initial
command packet for a data transfer operation request among command
packets that have been transferred from the other node after the
reset that clears node topology information has occurred, to use
as the second command packet for comparison with the first command
25 packet.

6. The data transfer control device as defined in claim 1,

wherein a state transition to a data transfer disabled state occurs when a data transfer completion status has been transferred to the other node but no acknowledgment has returned from the other node because of an occurrence of the reset that clears node topology information.

7. The data transfer control device as defined in claim 1, wherein transfer data that has not been transferred to the other node at a point at which the reset that clears node topology information had occurred, from within transfer data that has been transferred from an upper-layer device, is retained without being destroyed.

8. The data transfer control device as defined in claim 1, wherein the reset is a bus reset as defined by the IEEE 1394 standard.

9. A computer-usable information storage medium including a program for controlling data transfer to and from the data transfer control device defined by claim 1, the information storage medium comprising:

a program for creating a second command packet having the same content as a first command packet for a data transfer operation request that has been transferred before an occurrence 25 of a reset that clears node topology information, in order to issue a transfer request with respect to the data transfer control device, when the reset occurs during a transfer period.

10. A computer-readable information storage medium including a program for controlling data transfer to and from the data transfer control device defined by claim 2, the information storage medium
5 further comprising:

a program for creating a second command packet having the same content as a first command packet for a data transfer operation request that has been transferred before an occurrence of a reset that clears node topology information, in order to issue a transfer request with respect to the data transfer control device, when the reset occurs during a transfer period.

11. A computer-readable information storage medium including a program for controlling data transfer to and from the data transfer control device defined by claim 3, the information storage medium further comprising:

a program for creating a second command packet having the same content as a first command packet for a data transfer operation request that has been transferred before an occurrence 20 of a reset that clears node topology information, in order to issue a transfer request with respect to the data transfer control device, when the reset occurs during a transfer period.

12. A computer-readable information storage medium including a program for controlling data transfer to and from the data transfer control device defined by claim 4, the information storage medium
25 further comprising:

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a program for creating a second command packet having the same content as a first command packet for a data transfer operation request that has been transferred before an occurrence of a reset that clears node topology information, in order to issue a transfer request with respect to the data transfer control device, when the reset occurs during a transfer period.

13. A computer-usuable information storage medium including a program for controlling data transfer to and from the data transfer control device defined by claim 5, the information storage medium further comprising:

a program for creating a second command packet having the same content as a first command packet for a data transfer operation request that has been transferred before an occurrence of a reset that clears node topology information, in order to issue a transfer request with respect to the data transfer control device, when the reset occurs during a transfer period.

14. A computer-usuable information storage medium including a program for controlling data transfer to and from the data transfer control device defined by claim 6, the information storage medium further comprising:

a program for creating a second command packet having the same content as a first command packet for a data transfer operation request that has been transferred before an occurrence of a reset that clears node topology information, in order to issue a transfer request with respect to the data transfer control device,

when the reset occurs during a transfer period.

15. A computer-usuable information storage medium including a
program for controlling data transfer to and from the data transfer
control device defined by claim 7, the information storage medium
5 further comprising:

a program for creating a second command packet having the
same content as a first command packet for a data transfer
operation request that has been transferred before an occurrence
of a reset that clears node topology information, in order to issue
a transfer request with respect to the data transfer control device,
when the reset occurs during a transfer period.

16. A computer-usuable information storage medium including a
program for controlling data transfer to and from the data transfer
control device defined by claim 8, the information storage medium
further comprising:

a program for creating a second command packet having the
same content as a first command packet for a data transfer
20 operation request that has been transferred before an occurrence
of a reset that clears node topology information, in order to issue
a transfer request with respect to the data transfer control device,
when the reset occurs during a transfer period.

25 17. Electronic equipment comprising:

the data transfer control device as defined in claim 1;
a device for performing given processing on data that has

been received from another node through the data transfer control device and the bus; and

a device for outputting or storing data that has been subjected to processing.

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18. Electronic equipment comprising:

the data transfer control device as defined in claim 2;
a device for performing given processing on data that has been received from another node through the data transfer control device and the bus; and

a device for outputting or storing data that has been subjected to processing.

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19. Electronic equipment comprising:

the data transfer control device as defined in claim 3;
a device for performing given processing on data that has been received from another node through the data transfer control device and the bus; and

a device for outputting or storing data that has been subjected to processing.

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20. Electronic equipment comprising:

the data transfer control device as defined in claim 4;
a device for performing given processing on data that has been received from another node through the data transfer control device and the bus; and

a device for outputting or storing data that has been

subjected to processing.

21. Electronic equipment comprising:

the data transfer control device as defined in claim 5;

5 a device for performing given processing on data that has been received from another node through the data transfer control device and the bus; and

a device for outputting or storing data that has been subjected to processing.

10 22. Electronic equipment comprising:

the data transfer control device as defined in claim 6;

15 a device for performing given processing on data that has been received from another node through the data transfer control device and the bus; and

a device for outputting or storing data that has been subjected to processing.

23. Electronic equipment comprising:

20 the data transfer control device as defined in claim 7;

a device for performing given processing on data that has been received from another node through the data transfer control device and the bus; and

a device for outputting or storing data that has been

25 subjected to processing.

24. Electronic equipment comprising:

the data transfer control device as defined in claim 8;
a device for performing given processing on data that has
been received from another node through the data transfer control
device and the bus; and

5 a device for outputting or storing data that has been
subjected to processing.

25. Electronic equipment comprising:

the data transfer control device as defined in claim 1;
a device for performing given processing on data that is
to be transferred to another node through the data transfer control
device and the bus; and

a device for fetching data to be subjected to processing.

10 26. Electronic equipment comprising:

the data transfer control device as defined in claim 2;
a device for performing given processing on data that is
to be transferred to another node through the data transfer control
device and the bus; and

20 a device for taking in data to be subjected to processing.

25 27. Electronic equipment comprising:

the data transfer control device as defined in claim 3;
a device for performing given processing on data that is
to be transferred to another node through the data transfer control
device and the bus; and

a device for taking in data to be subjected to processing.

28. Electronic equipment comprising:

the data transfer control device as defined in claim 4;

a device for performing given processing on data that is

5 to be transferred to another node through the data transfer control
device and the bus; and

a device for taking in data to be subjected to processing.

29. Electronic equipment comprising:

the data transfer control device as defined in claim 5;

a device for performing given processing on data that is

to be transferred to another node through the data transfer control
device and the bus; and

a device for taking in data to be subjected to processing.

30. Electronic equipment comprising:

the data transfer control device as defined in claim 6;

a device for performing given processing on data that is

20 to be transferred to another node through the data transfer control
device and the bus; and

a device for taking in data to be subjected to processing.

31. Electronic equipment comprising:

the data transfer control device as defined in claim 7;

25 a device for performing given processing on data that is
to be transferred to another node through the data transfer control
device and the bus; and

a device for taking in data to be subjected to processing.

32. Electronic equipment comprising:
the data transfer control device as defined in claim 8;
a device for performing given processing on data that is
to be transferred to another node through the data transfer control
device and the bus; and
a device for taking in data to be subjected to processing.